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Chemical Expertise and Food Market Regulation in *Belle-Epoque* France

Pierre-Antoine Dessaux

In France, chemical expertise was made central to food safety policy when the law on the repression of fraud was passed in 1905. Far from being seen as a necessity it at first generated vigorous controversies. Most of the producers denounced its lack of reliability and its failure to understand business, especially since chemical expertise challenged more traditional state-of-the-art expertise. It thus had to gain credibility. This was achieved through a social and political process which grounded expertise in business practices rather than in the ambition to determine them.

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'When, for twenty years, a man has had formic aldehyde-preserved milk for breakfast, boraxed ham, sulfur-greened spinach and half a bottle of fuchsined, or too much plastered wine for lunch, how can we expect him to still have a stomach?' In France in the 1890s, most food safety-related debates would refer to this analysis made by one of the leading French hygienists, Paul Brouardel. As a member of the main French consultative committee on public hygiene and a first-class expert in forensic medicine, Brouardel was a respected authority on poisoning issues. Although far from original, his analysis encompassed most of the new realities underlying a growing distrust of food and drink. In the second half of the 19th century, food was no longer seen as potentially dangerous because of voluntary poisoning, natural decomposition or even fraud. Threats now came from denaturation, additives and new techniques aimed at producing adulterated products or improving preservation. New chemical applications and production techniques led to increasing uncertainty as to the quality of food products and most experts had reached the limits of their knowledge. Because science was at the origin of these uncertainties it was also perceived as the solution.

Pierre-Antoine Dessaux is at CRH-EHESS, Paris, France. E-mail: pierredessaux@free.fr

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Food evaluation and analysis thus needed to be taken out of the hands of producers and market professionals and entrusted to scientists.

For Brouardel then, as for most French and foreign hygienists, the answer was greater involvement of science and scientists in market regulation. However, many other interests and practices influenced market rules and their enforcement. Establishing new bases or even changing customs and habits meant convincing or dealing with insiders who were not necessarily keen on sharing their normative powers with scientific intruders. Of liberal inspiration, French law tended to consider trade as based on free will principles. Traders were supposed to be perfectly aware of the characteristics of the goods they exchanged. According to this interpretation, mistakes were caused either by the buyers' lack of attention or by cheating, and they could easily be remedied by recourse to common knowledge. Thus, expert analysis was a matter for professionals within the food and drink industry. Working from the premise that this could no longer be taken for granted entailed revising the very nature of commercial laws and the way commercial standards were established. Symmetry in trade between sellers and buyers would disappear. Standards would have to be established for all products before any trading could take place. Freedom of commerce would vanish. Innovation would be stymied as science would be in charge of trade rules and imposing sets of references. As a result, the introduction of science and scientific analysis into food markets was neither easy nor welcome.

At the end of the 19th century, the issues related to what is nowadays called food risk management and the role of scientific analysis in business supervision were not specific to France.[1] Most industrialized countries were attempting to reform trade policies and to redefine the notion of quality.[2] These processes relied on complex coordination and competition between various players, each of them anxious to defend their interests and expertise. Thus both in Great Britain, which pioneered the issue in the 1870s, and in the USA in the early 20th century, insiders usually managed to limit new experts' powers and preserved most of their capacity to control trade rules even against consumer interests. In both cases, even though scientists were heavily involved, producers and merchants remained the key players in business regulation.

The promoters of market rules that were aimed at protecting consumers and based on 'impartial' scientific expertise, usually denounced the continued predominance of producers and merchants[3] in setting commercial 'rules of the game' because of the primacy of supply over demand. Changes came about instead through the gradual introduction of new concerns about nutrition, hygiene and public health. Producers and merchants had to be convinced of the appropriateness of introducing science into trade. Scientific experts had to become involved in political maneuvering that was not limited to gaining the majorities necessary to pass new laws. Their goal, i.e. changing business practices, was much more difficult to attain. This relied on the ability of business and science to find common ground. This process is often referred to and merits study as 20th century market regulations resulted from the coordination of earlier methods of evaluation practiced by food professionals with new scientific approaches. It could result in various solutions depending upon the local balance of power and local institutions and could lead to path-dependent processes and national procedures for

dealing with these issues. Thus the manner in which science and industry, or chemical analysts and business representatives worked together to develop standards and define products reflected specific national customs and issues. The French case illustrates this point.

Food Risk Management in France before the 1905 Law

In early 19th-century France, consumer protection was limited to market control policy that provided for prosecution in the event of fraud. It was based on post-revolutionary laws influenced by liberal ideas on trade and business. According to this approach, transactions were supposed to be agreed upon freely on the basis of sellers and buyers' perfect knowledge of the goods exchanged. If tainted or dangerous goods were traded, buyers could be blamed for negligence if the nature or quality of the goods was not as described. The law would protect the buyer only if cheating could be proven. The law was more severe in the event that attempted poisoning could be proven. In such cases, sellers had to prove their good faith. The primary aim of the law was not consumer protection, but rather to facilitate trade by limiting cases of loss of trust that could ruin the reputation of entire industries.[4] Consequently, trading parties, producers and middlemen were at the center of regulatory activity. If an expert evaluation was needed in court cases or public discussions, professionals were called upon. Since the end of the 1840s, these were most often chosen from among members of chambers of commerce who sat in trade courts and began to acquire a reputation for probity and the ability to act in the common interest.[5] This approach to dispute resolution was nevertheless contested. Peers' ability to act in accordance with the public interest was not taken for granted. Moreover, an increasing share of fraud and adulteration cases appeared to result from state-of-the-art chemical knowledge. Professionals' ability to assess the *bona fide* nature of a product turned out to be questionable. This became a key issue as disputes and uncertainties concerning product quality increased dramatically in sectors such as the wine industry. Thus, by the middle of the century, overhauling French market regulations had become a necessity.

The first law on fraud and adulteration was passed in 1851. It applied to food and drinks and clearly defined the nature and penalties for different offences. However, it did not specify how to prove fraud or adulteration, nor did it set standards for evaluating fraud. Benchmark references were still supposed to be based on common knowledge. Judges and their experts remained free to define them for each case. This process was easily challenged and the law was barely enforced. Uncertainty developed in many markets and the quality of food products and drinks became a serious concern. Public debate continued and led to new laws in March 1855 and July 1867 that enabled towns and cities to establish some control over the food and drink trade. This was only a limited solution as it was impossible to reach an overall consensus on regulation that would have threatened free trade and involved new partners. Local control was preferred even though it led to uneven levels of protection that depended on municipal commitment.

As a result, towns and cities developed new means of dealing with such issues. In 1876, the Paris city council initiated a national movement by creating a municipal

laboratory entitled to analyze suspect food and drinks. The laboratory had real powers as it was part of the police department. Other major French cities soon imitated this development. An initial informal network of chemical experts was created that served as the basis for a future national organization.[6] In 1883, the heads of these local laboratories even considered strengthening their relations through a national consultative committee that would have produced common recommendations on the repression of fraud. Such an initiative presented an enormous threat to its opponents, mainly merchants and middlemen, who believed such a move would jeopardize commercial interests. Indeed, the *Laboratoire municipal de Paris* was on everyone's mind.

As the first municipal laboratory, the *Laboratoire municipal de Paris* paved the way for a new market control policy. Its head, Charles Girard, could easily be compared to Harvey Wiley, the father of the American Food and Drug Administration. Both were tireless consumer protection militants and promoted a new era of scientific trade control. Girard had no hesitation in inventing certain methods and procedures that, while they had absolutely no legal basis, could prove effective in practice. His power derived from his ability to jeopardize commercial reputations through publicizing his doubts about a seller's honesty. He was especially openly critical of wine and spirits sellers who were involved in most fraud and adulteration cases. He disputed the ability of trade and industry professionals to provide credible expertise and defended essentially scientific expertise.[7] Rejecting practices he considered as outdated, the *Laboratoire municipal* attempted to develop its own set of references for analyzing a sample. Furthermore, as part of the police department, it supervised the officers in charge of collecting samples. It defined their work and requested that they gather all relevant information about cases under suspicion. In Girard's mind 'chemists' work must be reinforced by police work in order to stamp out fraud at the outset.'[8] Chemists had to lead investigations and base their evaluations on all available information. This was intended to overcome the well-known uncertainties associated with scientific analysis. Girard enjoyed an overwhelming influence in the courts. Judges were not allowed to base their decisions on *Laboratoire municipal* evaluations. However, the laboratory was so influential that even defendants were afraid to oppose it and being under a *Laboratoire municipal*-led investigation became a real threat. Many wine merchants challenged this new power from the outset. They managed to obtain an implicit denunciation of these practices by the French legislature. It was not enough to stop Girard and his team who were supported by Paris officials. Their activity went on until 1905 and for most food and drink professionals, the Parisian experience was the perfect example of the arbitrariness of scientific analysis and its willingness to overrule evaluations by professionals.

Nevertheless, during the 1880s, the idea that science could provide the basis for market regulation became more common. It was backed by the example of Paris and benefited from growing concerns over food quality since the lowering of prices in years of economic crisis was often understood to mean a lowering of their real value. The first market regulations that involved scientists related to fertilizers. In 1867 a scientific committee was asked by the Ministry of Trade and Agriculture to suggest improvements in the regulation of the fertilizer market. Scientists began to abandon the liberal

ideas upon which buyer–seller relationships were based. In the case of fertilizer, a product's quality could hardly be evaluated by farmers as this called for chemical knowledge. Thus, they needed protection, particularly as increased fraud could generate mistrust and limit the spread of new agricultural techniques. To avoid this, the scientific committee suggested scientifically based preventive procedures. An action should be considered fraudulent from the very intention of committing it. Trade effectiveness would no longer be taken into account when judging a crime. Such an approach would clearly reduce the freedom of the fertilizer industries and regulate these industries. Business completely opposed such a change and lobbied against it. Nevertheless, these proposals provided the basis for a law passed in 1888, which was poorly enforced due to the lack of adequate means and insufficient administrative procedures.[9]

The fertilizer law put scientists in the front line in the battle over market regulation. For many, it had the potential to herald an era of scientific involvement in trade, hygienic improvements and a greater defense of the public interest. In fact it did not! Fertilizers were too different from food. Farmers were not consumers and even scientists and hygienists were divided on the course of action to be taken. On one side, militants like Girard and Brouardel demanded wider involvement of science and scientists in daily life. They wanted to ensure greater consumer protection on the basis of scientific knowledge. Against them, administrative experts attacked this position as too radical. For experts like Fernand Bordas, who ran the Ministry of Finance laboratory, this was part of an unacceptable project for the socialist transformation of society in which state control would be dramatically increased. According to him, the best way to improve consumer protection was to promote dialogue between diverging interests in order to reach consensus-based agreements that would be easier to enforce. Scientists should be mere observers and assistants, not standard-setters, which would only lead to conflicts and lobbying, thereby limiting the scope of laws or regulations. This viewpoint gained some popularity in the 1890s, reflecting the growing concerns of hygienists hired as advisers and not decision-makers.[10]

At the turn of the century, as more scientists and doctors were elected, these two viewpoints clearly divided the French parliament.[11] Radical hygienists were often close to socialist movements and called for an overall change in politics and the functioning of society. Edouard Vaillant was one of their leaders. On the other side, parliamentary members such as Paul Cazeneuve promoted a reformist approach. They were keen to express their doubts concerning state-of-the-art scientific knowledge and considered that it could not be the sole basis for decision-making. They looked forward to increasing cooperation with producers and merchants and tried to convince them that science could be an ally rather than a threat and succeeded in developing regulations for specific markets.

In the cases of milk or meat, consumer defense converged with business interests. Sanitary concerns and the risk of public mistrust, with dramatic consequences for business, made agreements easier to achieve. The butter and margarine industries confronted each other, with butter emerging the stronger of the two. It feared that

margarine could jeopardize its business, and its professional association managed to obtain a protective law based on scientific arguments. In the case of the various wine industries, it turned out to be extremely difficult to find common ground, and science could not help insofar as it was practically impossible to characterize the nature of wine. A set of regulations was put into effect but went through a process of trial and error, and remained under the scrutiny of the various lobbies. At the end of the 19th century, a whole set of market regulations was developed. These laws resulted from partial consensus, limiting themselves to easily challenged solutions. As laws were often modified, they increased uncertainty about an industry's future without restoring any trust in products. Wine was the most noticeable example. At the end of the century the lasting crisis faced by this industry deepened. Uncertainty about wine quality and suspicion of fraud made it necessary to develop another approach. Laws and the multitude of amendments made on the basis of trial and error did not seem to be a solution. The process was time-consuming and politically dangerous for most legislators. The parliamentary agenda could not keep up with market changes, products and cases of fraud, and the political consensus required to pass the laws was always fragile. Another method had to be developed.

The 1905 Law: Aims and Debates

French food and drink market regulation was settled by a general law on fraud and adulteration passed on 1 August 1905 after a highly-contested process that began in 1895. Ten years were necessary to reach an agreement for durable reform and to catch up with related foreign legislation. Britain had reformed its 1875 Sale of Food Act in 1899. Belgium followed a similar process that led to extensive use of scientific knowledge and analysis. In 1906, after fierce debate, the American Food and Drug Act was passed, which promoted the development of product standards. International trade was faced with calls for protectionism that were sometimes based on hygienic arguments. Clarifying the nature of products was a way of limiting the consequences of such arguments. France was immediately concerned because its food and drink industries claimed to sell high-value, high-quality products. Its reputation needed an enforceable law similar to those of its foreign competitors. However, different countries turned out noticeably different legislation in this respect, particularly with regard to scientific expertise.

Reforming the 1851 fraud and adulteration law became a key issue during the 1890s. A first bill inspired by the fertilizer law was submitted to parliament in 1895 and immediately withdrawn in response to pressure from opponents. In 1898, the Minister of Agriculture Jules Méline submitted a second bill. It was again inspired by the fertilizer law. It planned to delegate regulatory power—based on expert recommendations—to the relevant government department. The aim was to combine the procedures used in the various municipal and government laboratories in order to avoid any legal challenges and to prevent defendants from disputing the type of methods used and hence the results. It was nevertheless obvious that this goal required that products have clear definitions. This entailed another process in which scientists and administrative

experts would have to play an important role, as the bill stated that most regulatory power would be delegated to public authorities and their experts. Delegating regulatory power was intended to limit the powers of lobbies by removing the arbitration process from the parliamentary process. It was hoped that a less visible process with less political interference would facilitate consensus between diverging interests. Who would then draw up the many definitions and standards without which regulations would have been useless? Though this was the most important issue, the bill was not absolutely clear on this score.[12]

Though the project merely aimed at unifying and extending existing market regulations and methods of investigation, many producers feared it would lead to a preliminary classification of goods for sale, and give scientists the power to enforce decisions through administrative regulations. Opposition was thus very strong and managed to delay final legislative deliberations until 1904.[13] During the 1904-1905 legislative debates, opponents such as Georges Berry, who represented merchants and middlemen, still opposed the idea of a committee of experts: 'The committee that you want to elect will act as a supreme council. Its decisions will be irrevocable. It will be given the right to decree formulas with which nature and consumer tastes will have to comply. Truly, it would be rather pleasant, were it not so dangerous for the future, to see nature ruled by infallible chemists'.[14] Such a possibility seemed even more ominous as it would give 'the gift of infallibility to chemists whose theories are challenged everyday by their own colleagues. Let us leave infallibility solely to the Council, my dear fellows.'[15] Such an understanding of the bill went far beyond its intentions, but it highlighted a number of uncertainties. First of all, product standards would clearly have to be defined if the law was to be enforced. This would remove fraud regulation from the immediate context of the transaction and represented a major transformation for the notion of free trade. Second, with regard to the definition of product standards, the bill merely stated that these were to be based on the work of agronomical and agricultural laboratories. On these two issues radical hygienists were ready to seize the initiative.

Vaillant led a socialist group that sought to transform the project into 'a general law on food hygiene'[16] aimed at protecting consumers. During the debates he proposed basing regulation on the advice of the Academy of Medicine and the Consultative Council of Public Hygiene and to make transactions subject to specific product definitions. This would free judges from evaluating the nature of a product. Most of the work would be done through laboratory analyses undertaken to look for discrepancies between samples and standards. Furthermore, it would make it possible to ban dangerous products on the basis of regulatory decisions. Last, a 'local food police' would be created to enforce market regulation and check goods in transit as well as upon delivery. The regulations would define responsibilities in the event of fraud or damages. These means would be supplemented by a laboratory network with one laboratory for every town of 30,000 inhabitants and chemical experts would be recruited after obtaining a still-to-be-created diploma.

There was no chance for such a radical bill to gain a majority. It mostly helped clarify the spirit of the initial bill and the way that it was supposed to be implemented. This at

least played a major role in reducing opposition. Replying to Vaillant, Léon Mougeot, the-then Minister of Agriculture, insisted that 'we are passing a law on fraud and not on public hygiene.' The aim was to improve trade, not to subject markets to some kind of 'collectivist state,'[17] to strengthen evidence for charges in courts, and not to create a policy for general market control. If the law had health consequences, these were to be considered as secondary and not primary goals. Freedom of trade was still a core value for the Republic and the Minister pointed out that consumers were free to consume dangerous products as long as they were aware of risks. According to these arguments, scientific analysis was strictly limited to facilitating justice and was not expected to provide the basis for regulations.

In fact, the legislators' general opinion was that chemical analysis was still in its infancy. It produced contradictory, ill-founded results and could not be used as a basis for regulation. Many scientists agreed with such arguments. Cazeneuve, for example, who was one of the most influential and moderate physician-legislators stressed that 'law must not be made by the Academy of Medicine.'[18] A *rapporteur* of the bill noted: 'the law does not have to provide definitions. Nothing changes with this bill. The judge must evaluate intentions, good faith and justifications and seek out fraud and fraud alone. He shall not sanction harmless mixtures advertised by product names or by sellers'.[19] Chemical expertise was simply intended to provide judges with certain information. Science remained in a secondary position and if scientists wanted to promote public health by changing consumption habits they should do so through education. Lawmakers did not want to change market rules. They limited themselves to clarifying a domain whose rules were still determined by buyers and sellers.

Although proponents were clear about the limits on scientific powers, they did not explain how regulations would be prepared and what would be the respective roles of scientific and professional knowledge in the implementation of the law. In the first bill, agronomical and agricultural laboratories were the only experts referred to, both for rules and for analysis. This was mainly a question of pragmatism because they already existed at the national level. During the discussion of the bill it was decided that laboratories would not be allowed to draft the new rules; the credibility of laboratory chemists as experts was also challenged. In the case of wine, traditional organoleptic evaluations were still in use and challenged science's claim to be the sole reference. Intense lobbying by chambers of commerce, professional bodies and hygienists led to a broader, but vague requirement that decisions should be reached 'based on advice from any qualified technical or consultative committees.' In the final version of the bill any reference to specific committees was withdrawn. This resulted not so much from political indeterminacy as a readiness to admit any group willing to participate in the process. The Minister solemnly agreed to listen to the widest possible range of advice. This revealed the real nature of the law. Rather than imposing scientific expertise, it was keen on consensus building prior to implementation. The regulations drafted were intended to emerge from pedagogical approaches mobilizing all the parties involved in a common analysis of the best way to proceed. This alone would guarantee enforcement.

Implementing the Law

The law on fraud and adulteration passed on August 1, 1905, merely reflected a widespread consensus on the necessity to move towards efficient regulation even at the cost of increasing administrative power. Typical of these times, the law merely provided a framework and not a well-defined solution. It was supposed to be enforced through collective consent, not by force. The diverging interests were still supposed to reach an agreement between themselves. Once the law was passed, experts had only a minor role in the process. This point had been clearly emphasized during the discussion. As the member of parliament Trannoy (who was also one of the *rapporteurs*), pointed out: 'the law will really be implemented under the control and influence of professional associations of both workers and owners, and this will prove to be a form of social and democratic progress'.[20] At first sight, defining good practices or limiting technological applications to food production or preservation was regarded as being a matter for the producers, who were free to back their decisions with scientific analysis. This policy led to the creation of four commissions in charge of defining the new rules. A commission for beverages, wines and spirits and a food commission were created by decree on November 15, 1905. Most of their members were producers. A small number of scientific experts were included as observers and technicians. Scientists were expected to exercise their abilities in the other two commissions, the permanent commission on research and control of the processes of analysis, created by a decree on December 15, 1905, and the pharmaceutical products commission, created on January 3, 1907. Despite this clear division of powers, scientific experts soon gained wider responsibilities. Although their role had been reduced to that of mere observers of professional practices, scientific experts did call for a 'reformatting' of these practices so as to impose their own form of logic. Moreover, where professional practices remained unclear, experts had to define these in order to have enforceable rules by which they could introduce considerations of public hygiene and health. This kind of process was exactly what the industry feared, but it was achieved in such a way as to make it acceptable.

Enforcement of the 1905 law led to the hiring of scientific experts willing to work within a republican consensus framework. Eugene Roux (1860–1948) appeared to be the right man. His mission as head of the fraud repression service was both political and scientific. Born in Paris, this agronomical engineer who was also an experienced chemist, had worked for the Paris laboratory and the Museum of Natural History and been awarded a doctorate on sugar derivatives in 1903. He had strong political connections and had been a pro-Dreyfus militant. He defended the application of 'the true republican method,' i.e. 'a law is good if and only if its enforcement meets with the consent of those that are subject to it; it is even better when they participate in producing the law.'[21] He worked for the common interest following a process he defined as 'our democracy's global aspiration'.[22] In that respect, putting experts at the center of the transformation of business practices would not make sense. According to Roux, setting standards was not the job of science. Science had only to ensure that fraud was detected. 'For most products, we may allow producers full freedom as we are sure to be able to control the use of freedom, transform production processes and request explanations

from dishonest tradesmen.'[23] This implied an administration with both valuable expertise and the ability to work with and for businesses. As a result, Roux worked both to build an irreproachable inspection and analysis department and to define a framework for action based on a wide consensus on current notions of 'honest business', i.e. on a products' qualities and characteristics. According to his contemporaries, Roux succeeded in 'building a French doctrine for combating fraud and making it a part of normal custom and practice, and thus completing the legislators' work.'[24]

Making Chemical Expertise Unquestionable

Roux's first task was to organize the administrative and scientific means required by the law and to demonstrate that these could be trusted. The 1905 law did not mention what resources would be allocated to enforce it. Some public resources already existed. These included the laboratories attached to the Ministry of Finance (for wine and spirits), the customs services, the agronomical stations, laboratories of the Ministry of Agriculture, as well as active laboratories in certain major towns. Last, facilities were also available in the Army Equipment Administration Office of the Ministry for War. However these facilities were specialized and badly coordinated. They did not share common procedures and could even produce contradictory results. Implementation of the law required common and reliable practices but investments had to be made. In 1906, wine producers requested quick and sound application of the law. They supported the creation of new administrative resources and were able to obtain legislative support for the necessary budgets. Roux was hired as the inspecting officer for the existing laboratories. He had to determine which ones would receive official approval and be part of the network being set up. He also had to create a central laboratory, intended to become the authority on technical matters and to coordinate the various resources. But his main task was to convince industry and commerce that the fraud repression administration and its experts were reliable allies rather than arbitrary powers aimed at limiting business freedom.

Before 1905 vague methods and unclear results dramatically limited the influence of chemical expertise so that suspects were usually given the benefit of the doubt. This point had to be resolved if the law was to become effective. Such was the task of the technical commission created in December 1905 to mobilize the most prominent French chemists. In 1908, most of its members participated in the creation of a new professional review: the *Annales des falsifications et de l'expertise chimique*. It published expert reports, court cases and international comparisons. In 1912, it led to the first French association of expert chemists and a professional diploma was created by a law passed under Cazeneuve's supervision. The central department for fraud repression also publicized information about the law's enforcement through specialized publications and articles meant for businessmen. Its own legal department promoted new experts on the law through doctoral studies. Last, the central laboratory built up its position as the authoritative reference by hiring well-trained chemists with solid experience gained in other institutions. Within a few years chemical evaluations became more reliable.

According to Roux, as well as the Minister of Agriculture, Joseph Ruau, the key point was that the ability to enforce the law depended on gestures of goodwill towards producers and merchants. The latter were particularly reluctant to submit to a power that they still interpreted as being heir to the controversial practices developed by the Paris laboratory. Although it could have been expected that this laboratory would become a major part of the new system, it soon appeared that it was reluctant join it. Girard, its director, was opposed to a law that he considered insufficient and limiting the practices of his own laboratory. As part of the new network, he would have to restrict his activity to mere sample analyses and give up leading investigations and overseeing the Paris market. He feared that the administrators of the national network would eliminate the Parisian laboratory's ability to develop its own policy, the very policy that so many merchants had exposed as arbitrary. Girard also openly characterized the new law as a victory for cheaters over scientific experts.[25] Although it was by far the most important laboratory in France, the Paris laboratory was only integrated into the new system at the beginning of 1907. However, it was still not willing to take new orders. It resisted by dramatically reducing its activity. For a period, the fight against fraud practically stopped in the capital. For the fraud administration, this was a perfect opportunity to publicize differences between the new policy and previous initiatives. The Ministry of Agriculture sponsored an aggressive press campaign, especially in *Le Matin*, which had close ties to the parliamentary majority at the time. It denounced the Paris laboratory as being a 'shelter for fraud' and attacked Girard. It even suggested that he might be guilty of embezzlement while his actions were described as intimidating and uncontrollable with respect to his influence on judges and court experts. This attack was strong enough to warrant a discussion in parliament on 10 June 1907. The laboratory lost its accreditation, but more importantly, it demonstrated the changes. The Radical party and the Paris municipal government remained Girard's sole supporters. The central fraud administration provided evidence that it was not supporting a system in which scientists would have the central role and it publicly demonstrated its preference for a fruitful dialog with business.

One key issue in the shaping of these relations was the role of practical expertise in the new system and its link to chemical analysis. This was particularly important in the case of wine, where tasting had been developed as a normal business skill. This issue was part of a longstanding controversy because this kind of expertise was seen as too close to business interests and as not sharing any of the methods or even the same language as scientific analysis. Scientists had tended to denigrate these kinds of practices even though they were the only way to ascertain a wine's origin and they could produce better results than chemical analysis. After decades of denial, Roux chose to listen to these arguments and to include them in official procedures. He stated that 'chemical analysis alone is not always sufficient to characterize a product's integrity and quality. It is by adding information on the origin, which often relies on organoleptic characteristics, that it may be possible to make a proper assessment. The evaluation of organoleptic characteristics may be tackled by chemical analysts. However, it will only reach a real degree of precision and certainty if it is carried out by skilled professional people. It will be even better if it is based on a careful examination and incorporates a

right-to-reply procedure.'[26] The central laboratory consequently hired tasting experts who proceeded to analyze wine and spirits under the supervision of chemists. Seventy such experts were appointed, most of whom were in fact the presidents or secretaries of food industry associations. Roux made no secret that this procedure had a political aim: 'this complementary evaluation based on the same anonymous samples as chemical ones brings skilled people in business into contact with chemists: it enables each of them to observe the coordination of honest efforts that are very different but aimed at a common goal.' Nevertheless, this association did not lead to a sharing of responsibility for the final reports, for which chemists remained solely responsible.[27] As this policy was not limited to the central laboratory, the goal was not so much to supplement chemical analysis as to bring business interests into the laboratories.

Reactions to the visible efforts made to coordinate the two approaches that were previously seen as in conflict were very encouraging. At the end of 1907, Albert Seigneurie, the influential editor of the leading grocers' newspaper congratulated the 'broad and proper approach' that the new administration was now following.[28] In February 1908, *Le Matin* ran a headline about 'a new *Entente Cordiale:* the one between the drinks business and the fraud repression administration'.[29] In June 1908, the *Revue Vinicole* stressed, 'Mr Roux is personally very popular with shopkeepers. … [He has proven] able to make acceptable strict legislation that could have turned out to be ruinous and harmful for business.'[30] In August 1908, the *Bulletin des Halles* applauded the fact that all the external experts of the central laboratory were merchants.[31] Thus, by the end of 1909, fraud repression's new doctrine was well-defined and it had met with most producers' and merchants' assent.

From the very beginning, the laboratories' tasks were based on the strict application of the law. These tasks were limited to assisting judges; the laboratories were excluded from becoming substitutes for the court. They produced 'food for thought' and not formal proof. The first circular sent to laboratory heads explained: 'laboratories' first role is to sort the samples for the examinations they will carry out, which will by no means be real expert analysis. From a judicial perspective, laboratories' evaluations will provide an indication that may be used as a basis for opening an investigation.'[32] Thus legally, laboratories did not provide formal expertise. Real independent expert analysis for which samples were taken from the very beginning of the case could only be performed once an investigation was underway. Official laboratories could be associated with a court procedure, but only as one resource among others, and only upon the judge's request. Laboratory activity became more acceptable as it was officially kept on the sidelines. Its role was mostly pedagogical. The point was to demonstrate that fraud could be identified and that this was positive for business. The way analytical processes and product standards were established was another element of this demonstration.

Producing Consensual Product References: Pure Food Reinterpreted

A 'pure food' approach to fraud and even product definition was clearly rejected during legislative discussions. A set of references were nevertheless necessary to specify 'the

nature' or the 'content in useful principles' that the law mentioned and without which laboratory measurements were impossible to interpret. References would be defined by deciding who would be responsible for this task. According to the law, this was the producers' job. This assumed the existence of a collective business organization; failing that, the fraud administration became the key player.

Of the three commissions, food, drinks and analytical methods, the drinks commission was the first to initiate its work in response to wine producers' pressure for new market rules. Forty-three members were appointed including a large majority of political representatives, as well as representatives from professional associations, thus guaranteeing the primacy of business interests. Three subcommittees were established. The first one, dominated by professionals, was in charge of 'trade', and was supposed to define business practices. The second, made up of scientists, was responsible for 'technical matters' and defining a set of references for analyses. It was in a position to be the most influential in product definition. The third committee had to deal with legal aspects in order to ensure the consistency of the regulations. During its first meeting the trade committee took charge of wine definition, which was *a priori* allotted to the technical committee.[33] This strategic issue was thus taken away from the technicians. Technical approaches and a method based on a standard definition of wine with basic characteristics and the limitation or banning of additives were replaced by a method built around a pragmatic mapping of wines based on a systematic analysis of samples of each vintage taken from every major vineyard. Fraud was supposed to be determined by direct comparison with referenced samples. With such an approach, the definition of wine could be a very basic one and did not require complex chemical results to encompass the huge variety of wines and local practices. The collection of samples began in 1906 and every year the central laboratory coordinated the process and established a set of references for wine of every origin. After so much controversy and the rejection of the pure food approach, a pragmatic basis was adopted for product definition.[34] The first definition of wine to be widely accepted resulted from an approach chosen by producers which contrasted with the timorous approach of the legislator. This forced parliament to fall into line and on 27 June 1907, Cazeneuve submitted an amendment enlarging the scope of the 1905 law and stipulating that government regulations must state 'the definition and denomination of all goods on the basis of commercial uses.' The necessary votes did not prove easy to obtain but the amendment was passed in 1908. By that time it was clear that 'the 1905 law has not got a proper name. It should be called a pure food law,' although the meaning of pure food was no longer the late-19th century one. Committee activity and product definition had dramatically changed it.

The committee in charge of products other than wine and spirits was quite different due to the food industry's low level of organization. Although the committee was supposed to work on a wide variety of different products, it had only 27 members among whom scientists were in the majority. Only eight members were producers and most of them were the food industry's most prominent industrialists.[35] Thus, only a small part of the industry was represented. In 1906 the first meetings focused on gathering information. The problems appeared to be more or less the same as in the wine

industry. Quality, trade practices and customs for naming products varied greatly and constituted a major problem for product definition and establishing references. In the case of mocha coffee, for example, it appeared that this name could be used to sell the fruit of specific plants or of a geographical origin, or even a mixture. A single plant grown in the same area could also be sold under different names and beans could have a different shape according to the age of the plant. It was very difficult to conduct a botanical analysis in order to guarantee the type or origin. Existing product evaluation was mostly a matter of business knowledge. It required information on transit through customs, relative business prices and the seller's reputation. In spite of the obvious inadequacies of the existing situation, there were a lot of misgivings about the impact of standardizing procedures for naming products and other trade practices. Such changes were seen as a path to control price even though pricing could be differentiated in accordance with differences in supply costs. The committee and inside sources feared that bad coffee would drive out good coffee. The mocha market worked with about 20 different names and 200 different labels. The committee was not entitled to simplify these practices, although no fraud case could be settled without an effort at simplification. A method had to be found, especially since grocers, once favorable to the new law, were becoming impatient by 1907 as it appeared that the committee might take decades, thus leading to major uncertainties as a result of the lack of clear regulations.

As Cazeneuve said during the discussion of his 1907 amendment: 'These regulations, which should constitute a kind of drink and food codex, have been drawn up by large committees composed of civil servants drawn from different departments, the most senior representatives from trade, industry and producers associations, as well as the most renowned scientists in France.'[36] Most of the work was still to be done. To force business to define their practices and to agree on new standards, fraud regulation managers chose to construct an international system. Against this new backdrop, solutions could be seen as urgent and necessary as it became a matter of strengthening the French food industry's reputation in international markets. The idea of an international system of regulation for food and drink was not new. It was part of many recommendations made at late-19th century hygienists' meetings. The concept of a *codex alimentarus* dated back at least to 1888, but for the first time it was backed by a genuine political will.

The idea of an international meeting on fraud regulation reappeared in August 1907 when Roux met Wiley as he was touring Europe to promote pure food policies.[37] In September 1907 a specific international association was created: La Croix Blanche de Genève. Based in Paris and benefiting from the French fraud administration network, it defined itself as an association of hygienists and chemical experts aimed at fighting fraud and adulteration in order to 'ensure that everyone has healthy and energy-giving food, and to provide "clean food for all".'[38] The association published *Annales de la falsification et de la repression des fraudes* jointly with the *Bulletin international de la repression des fraudes*. It was clearly linked to the fraud administration but worked independently and was free of official and political influence. Its first task was to organize an international congress in Geneva in September 1908 whose aim was to 'define pure

food.' 'Pure food' was to be understood as defined by the French fraud administration, which was quite different from previous definitions, even from Wiley's.

> The first conference will focus on merchants and producers points of view. They will be asked how 'pure food' should be understood for each kind of product as they deal with practical issues in the food markets and customer demands every day. In fact we are talking about *commercially pure food*, in other words, as it is requested and seen by buyers. … We will ask trade and industry representatives to specify which transformations must be considered as legitimate or necessary. [Then] a second conference will invite hygienists to analyze the results of this first assignment. Hygienists will accept or reject transformations on the basis of hygiene. … At a third conference, chemists will establish clear formulas for every product in order to have uniform methods of analysis …. Lawyers will then become involved in order to establish legal rules and to draft these solutions in written documents. In the last stage, diplomats will help reach an international agreement that will provide the basis for a food union in the same way as we have codified copyrights and patents. We know that the fact of having concluded an international agreement will push States to enact fraud and adulteration legislation in their own countries. In many other cases international law has had a beneficial effect on internal legislation.[39]

The Croix Blanche de Genève thus adhered to the approach that underpinned the application of the 1905 law. Producers still provided the basis for the process. As Bordas put it, the French way of establishing product references was the complete opposite to the American approach to standards or average products whereby enforcement was a matter for chemists. These contrasting principles and differing national perceptions with regard to developing legislation on fraud were reflected in the composition of the delegations. The French, Germans, Belgians, Spanish, Portuguese and Swiss were essentially producers and most of them worked on exporting goods.[40] Argentina, Chile, Great Britain, Italy, the Netherlands, Serbia and the USA mostly imported manufactured food products or exported unprocessed foods, and their delegates were mainly scientists, i.e. chemists, hygienists and doctors. At the international level, two concepts of pure food were in conflict and each was to have a major impact on commercial exchanges. However, in 1908 at the La Croix Blanche conference, the French producers had their way.

As the only acceptable decision-making procedure on that topic on the eve of the First World War, the democratic *ad hominem* vote during plenary sessions chosen by the Croix Blanche conferences mainly favored the expression of French business interests. With 34 official delegations and 900 enrolments (two-thirds of which were French), and about 600 participants, it was clearly a success even though not all objectives were achieved. Producers realized that decisions could greatly influence their future activities. Their professional associations did a great job of mobilizing people. The *Revue Viticole* stressed that 'this international congress will have wide authority and influence due to its members' renown. … It is very important for the wine and spirit business that the French should be present in as large numbers as possible for votes and in order to circulate information during discussions.'[41] For other businesses, the conference was seen as an opportunity to strengthen certain market positions through well-chosen product definitions. Consequently, 51 industrial associations participated as did certain chambers of commerce. Because of diverging interests the

conferences did not achieve all their goals but their organizers managed to reach agreement on a broad catalog of definitions that was published after the second and final congress held in Paris in 1909. Although the other phases were not reached and remained suspended for decades, this catalog had immediate consequences. In France, definitions agreed upon in 1909 were considered customary practice by judges and thus played a major role when official administrative regulations had not been set. Chemical expertise was able to make well-founded evaluations and began to play a major role in commercial disputes. At the international level, this first initiative certainly helped limit the spread of the US approach to food standards and provided the basis for the work of the Food and Agriculture Organization in the 1950s.

The introduction of chemical expertise into food market regulation in France during the *Belle Epoque* was not the result of a smooth transition in which science and its experts were recognized as trustworthy pioneers of a new era. They were new players in an already crowded arena and had to carve out a position for themselves. This meant giving up the idea of a global reassessment and limiting their hopes of strengthening consumer protection as market rules were determined by and for sellers. Moreover, they also had to give up the rather common idea in the 1890s of market rules driven by science in order to be able to change the perception of scientific expertise from that of a threat to free trade to that of an ally to industry. This process required pragmatic scientists who were keen on consensus-based rules as much for ideological reasons as for constructing an enforceable system in a context of very limited administrative resources. The price to be paid was limited consumer protection, at least during this first phase. The subsequent development of the central fraud repression department enlarged its scope of action in this regard but this was only possible because in the meantime scientific analysis had become a part of business practices. Its neutrality had become unquestioned and it mainly continued to work hand-in-hand with business.

Notes

[1] Comparative approaches on this issue, without the French and German cases however, can be found in Smith and Philips, *Food, Science, Policy and Regulation.* A bibliography on the US case 'Selected Sources on the History of the FDA' is available from http://www.fda.gov/opacom/morechoices/sources.html (last accessed August 2007) and for France in Stanziani, *Histoire de la qualité alimentaire*.

[2] On the distinctive name proviso principle, see Junod, 'Food Standards in the US.'

[3] Chatriot *et al.*, *The Expert Consumer*.

[4] Stanziani, *Histoire de la qualité alimentaire*, 2005.

[5] Lemercier, *Un si discret pouvoir.*

[6] Stanziani, *Histoire de la qualité alimentaire*, chap. 13; Paquy, 'Santé publique'; Tanguy, 'Au carrefour de l'hygiène publique.'

[7] *Journal Officiel, Chambre des Députés, Débats Parlementaires*, 8 December 1904: 2934.

[8] *Le Temps*, 13 June 1907.

[9] Jas, *Au carrefour de la chimie*, 293–95.

[10] Stanziani, *Histoire de la qualité alimentaire*, 68–69.

[11] La Berge, *Mission and Method*.

[12] *Journal Officiel*, Documents Parlementaires, Sénat, annexe 248, 6 April 1898: 406–9.
[13] Archives of the Parisian Chamber of Commerce, III:4.42, report of the meeting of 13 February 1901.
[14] *Journal Officiel*, Assemblée Nationale, 10 November 1904: 2358.
[15] *Journal Officiel*, Assemblée Nationale, 10 November 1904: 2356.
[16] *Journal Officiel*, débats parlementaires, 17 November 1911: 2487. On the history of hygiene in France see: Murard and Zylberman, *L'hygiène dans la République.*
[17] *Société des viticulteurs de France, Rapport de F. Larnaude sur la Loi du 1er août 1905*, Paris, 1906: 5.
[18] *Journal Officiel*, Assemblée Nationale, 17 December 1904: 3100.
[19] *Journal Officiel*, Assemblée Nationale, 10 November 1904: 2361.
[20] *Journal Officiel*, Assemblée Nationale, 24 November 1904: 2628.
[21] Roux, 'Rapport technique au Premier Congrès de la Croix Blanche,' 208; Toubeau, 'Hommage à Eugène Roux.'
[22] Borssat, 'Préface,' 9.
[23] Roux, 'La répression des fraudes,' 49.
[24] Queuille, 'In memoriam Eugène Roux.'
[25] *Le Temps*, 13 June 1907.
[26] French National Archives, CAC 840455/12, report on the creation of the central laboratory, 1908.
[27] French National Archives, CAC 840455/12, letter dated 27 January 1907.
[28] *L'Epicier*, 25 December 1907.
[29] *Le Matin*, 19 February 1908.
[30] *Revue Vinicole*, 25 June 1908.
[31] *Bulletin des Halles*, 13 August 1908.
[32] French National Archives, CAC 840455/12, 20 February 1907.
[33] Ministère de l'Agriculture, Commission chargée d'élaborer les règlements d'administration publique pour l'application de la loi di 1er août 1905.
[34] Gosset, *De la répression des fraudes*, 138.
[35] Gaston Menier: MP, director and owner of the most important chocolate plant in France; Jules Prevet: senator and president of the union of canning industries; Paul Rouvier: senator and president of the union of cooperative dairies of Poitou. Marguery, president of the union of Parisian grocers; Lunel, president of the union of olive oil producers and Vinayn one of the biggest grocery product producers also attended the committee.
[36] *Journal Officiel*, Assemblée Nationale, 10 June 1907: 1265.
[37] Article from the *New York Times* reprinted in *L'indépendant de la Charente*, 1 August 1907.
[38] Opening talk of the 1908 Congress by Charles Vuille. Vuille, *Compte rendu des travaux.*
[39] Opening talk of the 1908 Congress by Philippe Dunant. Vuille, *Compte rendu des travaux.*
[40] The most important companies of Swiss chocolate industry, the Spanish wine trade and the main German producers' unions were represented.
[41] *Revue Viticole*, 30 July 1908.

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